



PATENT

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 09/498,821  
Filing Date: February 4, 2000  
Applicant: Lutkus et al.  
Group Art Unit: 3627  
Examiner: Flemming Saether  
Title: Anti-Galling Fastener Inserts  
Attorney Docket: 0275M-000273

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Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**Appellant's Brief Under 37 C.F.R. §1.192**

Sir:

This is an appeal from the Official Action mailed January 2, 2001 rejecting the claims for a third time. A Notice of Appeal was filed on June 4, 2001 (June 2, 2001 being a Saturday) including the appropriate fees. Please note that the Appeal Brief has been submitted in triplicate and is accompanied by the requisite fee under 37 C.F.R. §1.17(c).

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### Real Party in Interest

The real party in interest is Emhart, Inc., a Delaware corporation having a place of business at Drummond Plaza Office Park, 1423 Kirkwood Highway, Newark, Delaware 19711, to which the inventors have assigned all rights in this invention. The Assignment was recorded in the U.S. Patent and Trademark Office on February 4, 2000 at Reel 010555, Frame 0250.

### Related Appeals and Interferences

There are no related appeals or interferences.

### Status of Claims

Claims 1-19 are pending in the application, prior to entry of the appended amendment, and stand rejected for the third time. This appeal is taken as to all pending claims after entry of the appended amendment.

### Status of Amendments

In response to the last Official Action, an amendment was filed on May 24, 2001. A copy of the amendment is attached and entry is requested.

### Summary of the Invention

#### I. The Claims and Description of the Invention

Upon entry of the amendment filed on May 24, 2001, Claims 1-2, 4-6, 8-10, 12-16 and 18-19 remain pending. Thus, Claims 2, 7, 11 and 17 should be cancelled.

The subject matter of the present application relates to screw thread inserts for receiving threaded fasteners wherein the inserts are formed from alloys which give the inserts anti-galling properties and to nut assemblies employing such inserts. More specifically, the fastener insert alloys are nitrogen strengthened stainless steel alloy comprising a) from about 0.05 to .15%

carbon; b) from about 5.0 to 12.0% manganese; c) from about 2.0 to 6.0% silicon; d) from about 12.0 to 20.0% chromium; e) from about 6.0 to 12.0% nickel; f) from about 0.02 to 0.8% nitrogen; with the remainder being iron.

Appellant has discovered that fastener inserts formed from this type of alloy have dramatically improved anti-galling characteristics. As noted at page 2, lines 1-15 of the application, fastener inserts formed from 302 and 304 type stainless steels exhibit a propensity to galling despite the relative hardness of these materials.

By way of definition and distinction, galling is distinguishable from wear in that galling results from metal to metal contact in localized areas which results in grooving and self-welding of the metals at the localized areas. Wear, however, is characterized by relatively uniform loss of metal from a surface as a result of rubbing a much harder metal surface against a much smaller metal surface.

While the fastener insert art has recognized a need for anti-galling fastener insert embodiments, heretofore none have been effectively developed.

Claim 2 relates to a specific type of fastener insert, namely helically coiled fastener inserts which require specific processing parameters to obtain a useful product, particularly those having a substantially diamond shaped cross-section over at least a portion thereof as now required by Claim 1.

Claim 4 relates to a helically coiled screw thread insert which is formed from an even more specific alloy composition.

Claim 6 also relates to a helically coiled screw thread insert which is formed from an even more specific alloy composition.

Claims 8 and 9 are essentially similar to Claims 4 and 5, but depend from a claim reciting a fastener insert formed from a more limited alloy composition.

Claims 10 and 11-13 relate generally to the same subject matter as Claims 6, 8 and 9, but serve to define a highly preferred embodiment of the present invention.

Claim 14 relates to a nut assembly employing a fastener insert formed from a metal alloy which is resistant to galling.

Claim 15 serves to define the metal alloy of Claim 14. Claims 16, 18 and 19 define specific fastener insert embodiments, similar to those set forth in the previous claims.

#### Summaries of the References Cited

##### U.S. PATENT NO. 5,860,779 (Toosky)

This patent relates to a locking nut for use with a bolt for connecting members together. The bolt has a head and a shank. The members are disposed between the head and the nut when the locking nut connects the members together. At least a portion of the shank has external threads formed thereon. The locking nut includes a shell having a bore extending therethrough for receiving the bolt. At least a portion of a wall of the bore has internal threads formed thereon. The shell is sized and shaped to permit rotation of the nut on the bolt for tightening the nut on the bolt. The nut further includes a generally tubular insert sized for being received in the bore of the shell. The insert has a threaded portion having an outer surface with external threads for threaded engagement with the internal threads of the shell and an inner surface with internal threads for threaded engagement with the external threads of the bolt. The external threads may be plated with a silver to provide lubrication and to prevent galling when the nut is rotated on the fastener shank.

##### U.S. PATENT NO. 3,912,503 (Schumacher et al.)

This patent relates to an austenitic stainless steel said to have excellent galling resistance by reason of a silicon containing surface oxide film and a high work hardening rate, good wear resistance, good corrosion resistance in chloride containing environments and excellent oxidation resistance. The stainless steel alloy contains 10 to 25 percent chromium, 3 to 15 percent nickel, 6 to 16 percent manganese, 2 to 7 percent silicon, 0.001 to 0.25 percent

carbon, 0.001 to 0.4 percent nitrogen and balance iron except for incidental impurities. Up to 4 percent molybdenum, up to 4 percent copper, 0.09 percent maximum sulfur and up to 0.50 percent maximum selenium may also be present.

#### U.S. PATENT NO. 4,563,119 (Cosenza)

This patent relates to a helically coiled wire insert of the type used for tapped holes in parent material that is generally softer than the bolt being screwed into the tapped hole. The two free ends of the coil have a hook recess on the inner screw thread of each and the terminal end of each free end coil has a reduced transverse cross section along one longitudinal axis of the wire. The surfaces of the hook recess are angled from the longitudinal axis of the insert to provide increased forces along the longitudinal axis of the insert.

#### Issues Presented

1. Are Claims 1-2, 4-6, 8-10, 12-16 and 18-19, upon entry of the appended amendment, patentable over Toosky in view of Schumacher and in further view of Cosenza, where applicable?
  - a. Is the suggested combination of the teachings of Toosky and Schumacher or Toosky, Schumacher and Cosenza appropriate?
  - b. If the proposed combination is appropriate, does the proposed combination actually teach or disclose the present invention?

#### Grouping of Claims

For purposes of this Appeal the claims are grouped according to the rejections that have been applied.

## Argument

Claims 1-2, 4-6, 8-10, 12-16 and 18-19 are patentable over the proposed combination of Toosky, Schumacher and Cosenza, where applicable, because (1) the proposed combination is improper; and (2) even if proper, the proposed combination fails to teach or disclose the present invention.

Since Appellants have amended Claims 1, 6, 10 and 14 to include the limitations of Claims 3, 7, 11 and 17, respectively, remarks relating to proposed combination of the references will now be presented.

Initially, Appellants contend that nowhere in Toosky is it taught or suggested that the insert has anything but a coating, e.g., plating, to prevent galling. In particular, not only does Toosky not teach the composition of the threaded inserts to be anti-galling, but he specifically teaches away from the possibility of the composition of the threaded insert to be the element necessary to prevent galling. Toosky states that the threaded insert includes *a plating to lubricate and prevent galling of the insert* at col. 5, lines 17+. Appellant respectfully submits that one skilled in the art would not look to modifying a teaching relating to the combination of lubrication and resistance to galling by the same element, e.g., a plating, to achieve a non-plated fastener insert which is resistant to galling. Thus, the requisite motivation of substituting the alloy of Schumacher is not provided.

Additionally, Appellants respectfully submit that while the stainless steel of Schumacher et al. is said to be workable into plate, sheet, strip, bar or rod, there is no indication that such materials could withstand the dimensional tolerances necessary to form helically coiled fastener inserts, particularly those having a substantially diamond shaped in cross-section.

Cosenza which is cited as disclosing a fastener insert of a shape similar to that claimed under the present invention, e.g., a coiled insert, also fails to provide sufficient basis for recognizing that dimensional tolerances differ depending on the shape and alloy type to be employed. This, coupled with the fact that Schumacher merely discloses a cylindrical shaped

fastener insert, provides additional support to the proposition that the prior art has not in any way suggested the desirability of the present invention.

The references of record also fail to disclose or appreciate that an enhanced surface area for mating receipt of a threaded fastener is desirable. By providing at least some, and preferably all, of the insert convolutions with a substantially diamond shape in cross section, a greater surface area is achieved along the internal screw thread convolutions. The added surface area translates into a stronger mechanical connection between the fastener and the insert, as well as between the insert and the tapped hole of a substrate for retention of the fastener is achieved.

"The mere fact that the prior art may be modified...does not make the modification obvious unless the prior art suggests the desirability of the modification." *In re Fritch*, 23 U.S.P.Q.2d 1780, 1783 (Fed. Cir. 1992). In the present case, the references of record have not taught the invention or suggested the desirability of the modifications offered by the present invention.

Furthermore, an indication of non-obviousness may be a long felt need in the art. In particular, in *Sibia Neurosciences, Inc. v. Cadus Pharmaceutical Corp.*, 55 U.S.P.Q.2d 1927, 1930 (Fed. Cir. 2000), the court states that inquiries into the facts of non-obviousness include "evidence of non-obviousness such as long felt need."

Appellants submit there is an evidence of a long felt need for a threaded insert which has anti-galling properties in and of itself, absent any coatings or platings. In this regard, Appellants note that the Schumacher patent which purportedly teaches the alloy of interest was filed in 1973, while the threaded insert of Toosky which appears to suggest the anti-galling benefit of a plating on an insert was filed in 1997. While Appellants maintain their contention of non-obviousness, the extended period of time between the references of record, should itself be sufficient evidence of a long felt need in the art for an anti-galling fastener insert. If necessary,

the Appellant is willing to submit an affidavit supportive of this long felt need in the industry for an anti-galling threaded insert.

#### Conclusion

The present claims are patentable over the references cited. Appellants, therefore, respectfully petition this Honorable Board to reverse the final rejection and to indicate that all claims are allowable.

Respectfully submitted,

Date: August 3, 2001

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## Appendix

### Copy of the Claims Appealed

1. A fastener insert formed from a nitrogen strengthened stainless steel alloy comprising:

- a) from about 0.05 to .15% carbon;
- b) from about 5.0 to 12.0% manganese;
- c) from about 2.0 to 6.0% silicon;
- d) from about 12.0 to 20.0% chromium;
- e) from about 6.0 to 12.0% nickel;
- f) from about 0.02 to 0.8% nitrogen;

with the remainder being iron,

wherein at least a portion of said fastener insert is substantially diamond shaped in cross-section.

2. The fastener insert of Claim 1 wherein said insert is in the form of a helically coiled wire.

Please cancel Claim 3.

4. The fastener insert of Claim 2 wherein said helically coiled wire has about a 60° internal screw thread convolution.

5. The fastener insert of Claim 1 wherein said helically coiled wire includes a selectively removable tang.

6. A helically coiled screw thread insert for receiving a threaded fastener, said insert being formed from an alloy comprising:

a) from about 0.05 to 0.15% carbon; b) from about 5.0 to 12.0% manganese; c) from about 2.0 to 6.0% silicon; d) from about 12.0 to 20.0% chromium; e) from about 6.0 to 12.0% nickel; f) from about 0.02 to 0.8% nitrogen; with the remainder being iron, at least a portion of said fastener insert having a substantially diamond shape in cross-section.

Please cancel Claim 7.

8. The fastener insert of Claim 6 wherein said helically coiled wire has a bout a 60° internal screw thread convolution.

9. The fastener insert of Claim 6 wherein said helically coiled wire includes a selectively removable tang.

10. A helically coiled screw thread insert for receiving a threaded fastener, said insert being formed from an alloy comprising:

a) from about 0.08 to 0.1% carbon; b) from about 7.0 to 9.0% manganese; c) from about 3.5 to 4.5% silicon; d) from about 16.0 to 18.0% chromium; e) from about 8.0 to 9.0% nickel; f) from about 0.08 to 0.18% nitrogen; with the remainder being iron, at least a portion of said fastener insert having a substantially diamond shape in cross-section.

Please cancel Claim 11.

12. The fastener insert of Claim 10 wherein said helically coiled wire has a bout a 60° internal screw thread convolution.

13. The fastener insert of Claim 10 wherein said helically coiled wire includes a selectively removable tang.

14. A nut assembly for use in association with a threaded fastener comprising:  
a nut having an internal screw thread barrel; and  
a fastener insert disposed within said barrel which is formed from a metal alloy which is resistant to galling, wherein at least a portion of said fastener insert is substantially diamond shape in cross-section.

15. The nut assembly of Claim 14 wherein the fastener insert is formed from a nitrogen strengthened stainless steel alloy comprising:

- a) from about 0.05 to .15% carbon;
  - b) from about 5.0 to 12.0% manganese;
  - c) from about 2.0 to 6.0% silicon;
  - d) from about 12.0 to 20.0% chromium;
  - e) from about 6.0 to 12.0% nickel;
  - f) from about 0.02 to 0.8% nitrogen;
- with the remainder being iron.

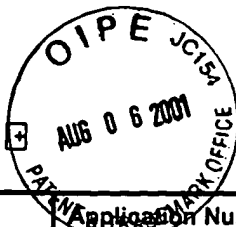
16. The nut assembly of Claim 14 wherein said fastener insert is a helically coiled wire.

Please cancel Claim 17.

18. The nut assembly of Claim 16 wherein said fastener insert has about a 60° internal screw thread convolution.

19. The nut assembly of Claim 16 wherein said fastener insert includes a selectively removable tang.

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HDP/SB/21 based on PTO/SB/21 (08-00)

# TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

<b>TRANSMITTAL FORM</b> (to be used for all correspondence after initial filing)	Application Number	09/498,821
	Filing Date	February 4, 2000
	First Named inventor	Lutkus et al.
	Group Art Unit	3627
	Examiner Name	Flemming Saether
Total Number of Pages in This Submission	Attorney Docket Number	0275M-000273

## ENCLOSURES (check all that apply)

<input checked="" type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input checked="" type="checkbox"/> Amendment / Response <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input checked="" type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/ Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Assignment Papers (for an Application) <input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s)	<input type="checkbox"/> After Allowance Communication to Group <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): <p style="text-align: center;">Fax cover sheet.</p>
Remarks		The Commissioner is hereby authorized to charge any additional fees that may be required under 37 CFR 1.16 or 1.17 to Deposit Account No. 08-0750. A duplicate copy of this sheet is enclosed.

## SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	Harness, Dickey & Pierce, P.L.C.	Attorney Name	Robert M. Siminski	Reg. No.	36,007
Signature	<i>Robert M. Siminski</i>				
Date	May 24, 2001				

## CERTIFICATE OF MAILING/TRANSMISSION

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231, or facsimile transmitted to the U.S. Patent and Trademark Office on the date indicated below.

Typed or printed name	Robert M. Siminski		
Signature	<i>Robert M. Siminski</i>	Date	May 24, 2001

<h1 style="margin: 0;">FEE TRANSMITTAL</h1> <h2 style="margin: 0;">for FY 2001</h2> <p style="font-size: small; margin: 5px 0;">Patent fees are subject to annual revision.</p>		<div style="border: 1px solid black; border-radius: 50%; padding: 10px; display: inline-block;"> <p style="margin: 0;">AUG 06 2001</p> <p style="font-size: x-small; margin: 0;">U.S. PATENT &amp; TRADEMARK OFFICE</p> </div>	
<p><b>TOTAL AMOUNT OF PAYMENT</b> (\$)</p>		<p><b>390</b></p>	
<p><b>Complete if Known</b></p>		<p><b>Application Number</b> 09/498,821</p>	
<p><b>Filing Date</b> February 4, 2000</p>		<p><b>First Named Inventor</b> Lutkus et al.</p>	
<p><b>Examiner Name</b> Flemming Saether</p>		<p><b>Group / Art Unit</b> 3627</p>	
<p><b>Attorney Docket No.</b> 0275M-000273</p>		<p><b>Attorney Docket No.</b> 0275M-000273</p>	

<p><b>METHOD OF PAYMENT (check one)</b></p>				<p><b>FEE CALCULATION (continued)</b></p>																																																																																																																																																																																	
<p>1. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge indicated fees and credit any over payments to:</p> <p>Deposit Account Number: <b>02-2550</b></p> <p>Deposit Account Name: <b>The Black &amp; Decker Corporation</b></p> <p><input checked="" type="checkbox"/> Charge Any Additional Fee Required Under 37 CFR 1.16 and 1.17</p> <p><input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27</p> <p>2. <input type="checkbox"/> Payment Enclosed:</p> <p><input type="checkbox"/> Check <input type="checkbox"/> Credit card <input type="checkbox"/> Money Order <input type="checkbox"/> Other</p>				<p><b>3. ADDITIONAL FEES</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Fee Code</th> <th>Large Entity Fee (\$)</th> <th>Fee Code</th> <th>Small Entity Fee (\$)</th> <th>Fee Description</th> <th>Fee Paid</th> </tr> </thead> <tbody> <tr><td>105</td><td>130</td><td>205</td><td>65</td><td>Surcharge - late filing fee or oath</td><td></td></tr> <tr><td>127</td><td>50</td><td>227</td><td>25</td><td>Surcharge - late provisional filing fee or cover sheet.</td><td></td></tr> <tr><td>139</td><td>130</td><td>139</td><td>130</td><td>Non-English specification</td><td></td></tr> <tr><td>147</td><td>2,520</td><td>147</td><td>2,520</td><td>For filing a request for reexamination</td><td></td></tr> <tr><td>112</td><td>920*</td><td>112</td><td>920*</td><td>Requesting publication of SIR prior to Examiner action</td><td></td></tr> <tr><td>113</td><td>1,840*</td><td>113</td><td>1,840*</td><td>Requesting publication of SIR after Examiner action</td><td></td></tr> <tr><td>115</td><td>110</td><td>215</td><td>55</td><td>Extension for reply within first month</td><td></td></tr> <tr><td>116</td><td>390</td><td>216</td><td>195</td><td>Extension for reply within second month</td><td>390</td></tr> <tr><td>117</td><td>890</td><td>217</td><td>445</td><td>Extension for reply within third month</td><td></td></tr> <tr><td>118</td><td>1,390</td><td>218</td><td>695</td><td>Extension for reply within fourth month</td><td></td></tr> <tr><td>128</td><td>1,890</td><td>228</td><td>945</td><td>Extension for reply within fifth month</td><td></td></tr> <tr><td>119</td><td>310</td><td>219</td><td>155</td><td>Notice of Appeal</td><td></td></tr> <tr><td>120</td><td>310</td><td>220</td><td>155</td><td>Filing a brief in support of an appeal</td><td></td></tr> <tr><td>121</td><td>270</td><td>221</td><td>135</td><td>Request for oral hearing</td><td></td></tr> <tr><td>138</td><td>1,510</td><td>138</td><td>1,510</td><td>Petition to institute a public use proceeding</td><td></td></tr> <tr><td>140</td><td>110</td><td>240</td><td>55</td><td>Petition to revive - unavoidable</td><td></td></tr> <tr><td>141</td><td>1,240</td><td>241</td><td>620</td><td>Petition to revive - unintentional</td><td></td></tr> <tr><td>142</td><td>1,240</td><td>242</td><td>620</td><td>Utility issue fee (or reissue)</td><td></td></tr> <tr><td>143</td><td>440</td><td>243</td><td>220</td><td>Design issue fee</td><td></td></tr> <tr><td>144</td><td>600</td><td>244</td><td>300</td><td>Plant issue fee</td><td></td></tr> <tr><td>122</td><td>130</td><td>122</td><td>130</td><td>Petitions to the Commissioner</td><td></td></tr> <tr><td>123</td><td>130</td><td>123</td><td>130</td><td>Petitions related to provisional applications</td><td></td></tr> <tr><td>126</td><td>180</td><td>126</td><td>180</td><td>Submission of Information Disclosure Stmt</td><td></td></tr> <tr><td>581</td><td>40</td><td>581</td><td>40</td><td>Recording each patent assignment per property (times number of properties)</td><td></td></tr> <tr><td>146</td><td>710</td><td>246</td><td>355</td><td>Filing a submission after final rejection (37 CFR § 1.129(a))</td><td></td></tr> <tr><td>149</td><td>710</td><td>249</td><td>355</td><td>For each additional invention to be examined (37 CFR § 1.129(b))</td><td></td></tr> <tr><td>179</td><td>710</td><td>279</td><td>355</td><td>Request for Continued Examination (RCE)</td><td></td></tr> <tr><td>169</td><td>900</td><td>169</td><td>900</td><td>Request for expedited examination of a design application</td><td></td></tr> </tbody> </table> <p>Other fee (specify) _____</p> <p>*Reduced by Basic Filing Fee Paid</p>				Fee Code	Large Entity Fee (\$)	Fee Code	Small Entity Fee (\$)	Fee Description	Fee Paid	105	130	205	65	Surcharge - late filing fee or oath		127	50	227	25	Surcharge - late provisional filing fee or cover sheet.		139	130	139	130	Non-English specification		147	2,520	147	2,520	For filing a request for reexamination		112	920*	112	920*	Requesting publication of SIR prior to Examiner action		113	1,840*	113	1,840*	Requesting publication of SIR after Examiner action		115	110	215	55	Extension for reply within first month		116	390	216	195	Extension for reply within second month	390	117	890	217	445	Extension for reply within third month		118	1,390	218	695	Extension for reply within fourth month		128	1,890	228	945	Extension for reply within fifth month		119	310	219	155	Notice of Appeal		120	310	220	155	Filing a brief in support of an appeal		121	270	221	135	Request for oral hearing		138	1,510	138	1,510	Petition to institute a public use proceeding		140	110	240	55	Petition to revive - unavoidable		141	1,240	241	620	Petition to revive - unintentional		142	1,240	242	620	Utility issue fee (or reissue)		143	440	243	220	Design issue fee		144	600	244	300	Plant issue fee		122	130	122	130	Petitions to the Commissioner		123	130	123	130	Petitions related to provisional applications		126	180	126	180	Submission of Information Disclosure Stmt		581	40	581	40	Recording each patent assignment per property (times number of properties)		146	710	246	355	Filing a submission after final rejection (37 CFR § 1.129(a))		149	710	249	355	For each additional invention to be examined (37 CFR § 1.129(b))		179	710	279	355	Request for Continued Examination (RCE)		169	900	169	900	Request for expedited examination of a design application	
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\*or number previously paid, if greater; For Reissues, see above

<p><b>SUBMITTED BY</b></p>		<p><b>Complete (if applicable)</b></p>	
Name (Print/Type)	Robert M. Siminski	Registration No. Attorney/Agent	36,007
Signature	<i>Robert M. Siminski</i>	Telephone	248-641-1600
		Date	May 24, 2001

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

Burden Hour Statement: This form is estimated to take 0.2 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.: 09/498,821  
Filing Date: February 4, 2000  
Applicant: Lutkus et al.  
Group Art Unit: 3627  
Examiner: Flemming Saether  
Title: Anti-Galling Fastener Inserts  
Attorney Docket: 0275M-000273

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Commissioner of Patents and Trademarks  
Washington, D.C. 20231

AMENDMENT AND PETITION FOR EXTENSION OF TIME

Sir:

In response to the Office Action mailed January 2, 2001, please amend the application as follows and consider the remarks set forth below.

Applicant hereby petitions under the provisions of 37 C.F.R. § 1.136(a) for a two month extension of time in which to respond to the outstanding Office Action. Applicant has included a Fee Transmittal with this response authorizing the extension fee payment to be charged to the appropriate Deposit Account for such extension of time.

IN THE SPECIFICATION

Please replace the paragraph of the specification beginning on page 4, line 4 with the paragraph set forth below. Applicant includes herewith an Attachment for Specification

Amendments showing a marked up version of each replacement paragraph. Applicant submits that the added language serves to clarify the scope of the invention and such language is fully supported by the specification and drawings as originally filed. The replacement paragraph should read as follows:

After forming the alloy into a round wire and allowing the wire to cool to room temperature, the wire is shaped to include at least a portion of wire having a substantially diamond shaped cross section. The wire is formed into an insert having a significant amount of surface area along the internal screw thread convolution. The resulting fastener inserts should have excellent anti-galling characteristics at both ambient and elevated temperatures. Further, the fastener inserts should have good corrosion resistance and a room temperature yield strength which surprisingly is almost twice that of fastener inserts formed from 304 type stainless steel. The nitrogen strengthened stainless steel fastener inserts of the present invention also provide excellent oxidation resistance and excellent impact strength, particularly at sub-zero temperatures.

#### IN THE CLAIMS

Please amend the claims in accordance with the following rewritten claims in clean form. Applicant includes herewith an Attachment for Claim Amendments showing a marked up version of each amended claim.

1. (Amended) A fastener insert formed from a nitrogen strengthened stainless steel alloy comprising:

- a) from about 0.05 to .15% carbon;
- b) from about 5.0 to 12.0% manganese;
- c) from about 2.0 to 6.0% silicon;
- d) from about 12.0 to 20.0% chromium;
- e) from about 6.0 to 12.0% nickel;

f) from about 0.02 to 0.8% nitrogen;  
with the remainder being iron,  
wherein at least a portion of said fastener insert is substantially diamond shaped in cross-section.

Please cancel Claim 3.

6. (Amended) A helically coiled screw thread insert for receiving a threaded fastener, said insert being formed from an alloy comprising:

a) from about 0.05 to 0.15% carbon; b) from about 5.0 to 12.0% manganese; c) from about 2.0 to 6.0% silicon; d) from about 12.0 to 20.0% chromium; e) from about 6.0 to 12.0% nickel; f) from about 0.02 to 0.8% nitrogen; with the remainder being iron, at least a portion of said fastener insert having a substantially diamond shape in cross-section.

Please cancel Claim 7.

10. (Amended) A helically coiled screw thread insert for receiving a threaded fastener, said insert being formed from an alloy comprising:

a) from about 0.08 to 0.1% carbon; b) from about 7.0 to 9.0% manganese; c) from about 3.5 to 4.5% silicon; d) from about 16.0 to 18.0% chromium; e) from about 8.0 to 9.0% nickel; f) from about 0.08 to 0.18% nitrogen; with the remainder being iron, at least a portion of said fastener insert having a substantially diamond shape in cross-section.

Please cancel Claim 11.

14. (Amended) A nut assembly for use in association with a threaded fastener comprising:

a nut having an internal screw thread barrel; and

a fastener insert disposed within said barrel which is formed from a metal alloy which is resistant to galling, wherein at least a portion of said fastener insert is substantially diamond shape in cross-section.

Please cancel Claim 17.

#### **REMARKS**

Claims 1-19 are now pending in the application. In this response, Applicants have amended Claims 1, 6, 10 and 14 and have requested cancellation of Claims 2, 7, 11 and 14.

#### **REJECTIONS UNDER 35 U.S.C. § 103**

Claims 1, 2, 6, 20 and 14-16 currently stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Toosky in view of Schumacher. In this regard, the Examiner believes it would have been obvious for one of ordinary skill in the art to make the insert of Toosky out of a material as disclosed in Schumacher because an alloy which itself resists galling would be preferable to a separate coating or plating as currently employed in Toosky.

Claims 3-5, 7-9, 11-13 and 17-19 currently stand rejected under 35 U.S.C. §103(a) as being unpatentable over modified Toosky as applied to Claims 1, 2, 6, 10, 14 and 16 in further view of Cosenza. The Examiner believes it would have been obvious for one of ordinary skill in the art to make the insert of Toosky of a shape as disclosed in Cosenza because the shape of the insert of Cosenza provides for superior thread engagements.

Since Applicants have amended Claims 1, 6, 10 and 14 to include the limitations of Claims 3, 7, 11 and 17, respectively, remarks relating to proposed combination of the references will now be presented.

Initially, Applicants must again draw the Examiner's attention to the fact that nowhere in Toosky is it taught or suggested that the insert has anything but a coating to prevent galling. In particular, not only does Toosky not teach the composition of the threaded inserts to be anti-galling, but he specifically teaches away from the possibility of the composition of the threaded insert to be the element necessary to prevent galling. Toosky states that the threaded insert includes *a plating to lubricate and prevent galling of the insert* at col. 5, lines 17+. Applicant respectfully submits that one skilled in the art would not look to modifying a teaching relating to the combination of lubrication and resistance to galling by the same element, e.g., a plating, to achieve a non-plated fastener insert which is resistant to galling.

Additionally, Applicants respectfully submit that while the stainless steel of Schumacher et al. is said to be workable into plate, sheet, strip, bar or rod, there is no indication that such materials could withstand the dimensional tolerances necessary to form helically coiled fastener inserts, particularly those having a substantially diamond shaped in cross-section.

Cosenza which is cited as disclosing a fastener insert of a shape similar to that claimed under the present invention, e.g., a coiled insert, also fails to provide sufficient basis for recognizing that dimensional tolerances differ depending on the shape and alloy type to be employed. This, coupled with the fact that Schumacher merely discloses a cylindrical shaped fastener insert, provides additional support to the proposition that the prior art has not in any way suggested the desirability of the present invention.

The references of record also fail to disclose or appreciate that an enhanced surface area for mating receipt of a threaded fastener is desirable. By providing at least some, and preferably all, of the insert convolutions with a substantially diamond shape in cross section, a greater surface area is achieved along the internal screw thread convolutions. The added

surface area translates into a stronger mechanical connection between the fastener and the insert, as well as between the insert and the tapped hole of a substrate for retention of the fastener is achieved.

"The mere fact that the prior art may be modified...does not make the modification obvious unless the prior art suggests the desirability of the modification." In re Fritch, 23 U.S.P.Q.2d 1780, 1783 (Fed. Cir. 1992). In the present case, the references of record have not taught the invention or suggested the desirability of the modifications offered by the present invention.

Furthermore, an indication of non-obviousness may be a long felt need in the art. In particular, in *Sibia Neurosciences, Inc. v. Cadus Pharmaceutical Corp.*, 55 U.S.P.Q.2d 1927, 1930 (Fed. Cir. 2000), the court states that inquiries into the facts of non-obviousness include "evidence of non-obviousness such as long felt need." From the art cited, there is an evidence of a long felt need for a threaded insert which has anti-galling properties in and of itself, absent any coatings or platings. In this regard, the Examiner's attention is directed to the fact that the Schumacher patent which purportedly teaches the alloy of interest was filed in 1973, while the threaded insert of Toosky which appears to suggest the anti-galling benefit of a plating on an insert was filed in 1997. While Applicants maintain their contention of non-obviousness, the extended period of time between the references of record, should itself be sufficient evidence of a long felt need in the art for an anti-galling fastener insert. If necessary, the Applicant is willing to submit an affidavit supportive of this long felt need in the industry for an anti-galling threaded insert.

### CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and

complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: May 24, 2001

By: Robert M. Siminski  
Robert M. Siminski  
Reg. No. 36,007

HARNESS, DICKEY & PIERCE, P.L.C.  
P.O. Box 828  
Bloomfield Hills, Michigan 48303  
(248) 641-1600

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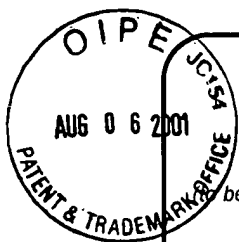
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# TRANSMITTAL FORM

to be used for all correspondence after initial filing)

Application Number	09/498,821
Filing Date	February 4, 2000
First Named Inventor	Lutkus et al.
Group Art Unit	3627
Examiner Name	Flemming Saether
Attorney Docket Number	0275M-000273

Total Number of Pages in This Submission

## ENCLOSURES (check all that apply)

<input checked="" type="checkbox"/> Fee Transmittal Form <input checked="" type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment / Response <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/ Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Assignment Papers (for an Application) <input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s)	<input type="checkbox"/> After Allowance Communication to Group <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input checked="" type="checkbox"/> Appeal Communication to Group (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): return postcard
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Remarks

The Commissioner is hereby authorized to charge any additional fees that may be required under 37 CFR 1.16 or 1.17 to Deposit Account No. 08-0750. A duplicate copy of this sheet is enclosed.

The Appeal Brief is sent in triplicate.

## SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	Harness, Dickey & Pierce, P.L.C.	Attorney Name	Robert M. Siminski	Reg. No.	36,007
Signature					
Date	August 3, 2001				

## CERTIFICATE OF MAILING/TRANSMISSION

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231, or facsimile transmitted to the U.S. Patent and Trademark Office on the date indicated below.

Typed or printed name	Robert M. Siminski		
Signature		Date	August 3, 2001

**PTO FEE TRANSMITTAL**  
**for FY 2001**

Patent fees are subject to annual revision.

**TOTAL AMOUNT OF PAYMENT (\$)** 310

**Complete if Known**

Application Number	09/498,821
Filing Date	February 4, 2000
First Named Inventor	Lutkus et al.
Examiner Name	Flemming Saether
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METHOD OF PAYMENT (check one)		FEE CALCULATION (continued)																																																																																																																																																		
<p>1. <input type="checkbox"/> The Commissioner is hereby authorized to charge indicated fees and credit any over payments to:</p> <p>Deposit Account Number: 08-0750</p> <p>Deposit Account Name: Harness, Dickey &amp; Pierce, P.L.C.</p> <p><input checked="" type="checkbox"/> Charge Any Additional Fee Required Under 37 CFR 1.16 and 1.17</p> <p><input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27</p>		<p>3. ADDITIONAL FEES</p> <table border="1"> <thead> <tr> <th>Fee Code</th> <th>Large Entity Fee (\$)</th> <th>Small Entity Fee (\$)</th> <th>Fee Description</th> <th>Fee Paid</th> </tr> </thead> <tbody> <tr><td>105</td><td>130</td><td>205</td><td>65</td><td></td></tr> <tr><td>127</td><td>50</td><td>227</td><td>25</td><td></td></tr> <tr><td>139</td><td>130</td><td>139</td><td>130</td><td></td></tr> <tr><td>147</td><td>2,520</td><td>147</td><td>2,520</td><td></td></tr> <tr><td>112</td><td>920*</td><td>112</td><td>920*</td><td></td></tr> <tr><td>113</td><td>1,840*</td><td>113</td><td>1,840*</td><td></td></tr> <tr><td>115</td><td>110</td><td>215</td><td>55</td><td></td></tr> <tr><td>116</td><td>390</td><td>216</td><td>195</td><td></td></tr> <tr><td>117</td><td>890</td><td>217</td><td>445</td><td></td></tr> <tr><td>118</td><td>1,390</td><td>218</td><td>695</td><td></td></tr> <tr><td>128</td><td>1,890</td><td>228</td><td>945</td><td></td></tr> <tr><td>119</td><td>310</td><td>219</td><td>155</td><td></td></tr> <tr><td>120</td><td>310</td><td>220</td><td>155</td><td></td></tr> <tr><td>121</td><td>270</td><td>221</td><td>135</td><td></td></tr> <tr><td>138</td><td>1,510</td><td>138</td><td>1,510</td><td></td></tr> <tr><td>140</td><td>110</td><td>240</td><td>55</td><td></td></tr> <tr><td>141</td><td>1,240</td><td>241</td><td>620</td><td></td></tr> <tr><td>142</td><td>1,240</td><td>242</td><td>620</td><td></td></tr> <tr><td>143</td><td>440</td><td>243</td><td>220</td><td></td></tr> <tr><td>144</td><td>600</td><td>244</td><td>300</td><td></td></tr> <tr><td>122</td><td>130</td><td>122</td><td>130</td><td></td></tr> <tr><td>123</td><td>130</td><td>123</td><td>130</td><td></td></tr> <tr><td>126</td><td>180</td><td>126</td><td>180</td><td></td></tr> <tr><td>581</td><td>40</td><td>581</td><td>40</td><td></td></tr> <tr><td>146</td><td>710</td><td>246</td><td>355</td><td></td></tr> <tr><td>149</td><td>710</td><td>249</td><td>355</td><td></td></tr> <tr><td>179</td><td>710</td><td>279</td><td>355</td><td></td></tr> <tr><td>169</td><td>900</td><td>169</td><td>900</td><td></td></tr> </tbody> </table>		Fee Code	Large Entity Fee (\$)	Small Entity Fee (\$)	Fee Description	Fee Paid	105	130	205	65		127	50	227	25		139	130	139	130		147	2,520	147	2,520		112	920*	112	920*		113	1,840*	113	1,840*		115	110	215	55		116	390	216	195		117	890	217	445		118	1,390	218	695		128	1,890	228	945		119	310	219	155		120	310	220	155		121	270	221	135		138	1,510	138	1,510		140	110	240	55		141	1,240	241	620		142	1,240	242	620		143	440	243	220		144	600	244	300		122	130	122	130		123	130	123	130		126	180	126	180		581	40	581	40		146	710	246	355		149	710	249	355		179	710	279	355		169	900	169	900	
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140	110	240	55																																																																																																																																																	
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<p><b>FEE CALCULATION</b></p> <p>1. BASIC FILING FEE</p> <table border="1"> <thead> <tr> <th>Large Fee Code</th> <th>Entity Fee (\$)</th> <th>Small Fee Code</th> <th>Entity Fee (\$)</th> <th>Fee Description</th> <th>Fee Paid</th> </tr> </thead> <tbody> <tr><td>101</td><td>710</td><td>201</td><td>355</td><td>Utility filing fee</td><td></td></tr> <tr><td>106</td><td>320</td><td>206</td><td>160</td><td>Design filing fee</td><td></td></tr> <tr><td>107</td><td>490</td><td>207</td><td>245</td><td>Plant filing fee</td><td></td></tr> <tr><td>108</td><td>710</td><td>208</td><td>355</td><td>Reissue filing fee</td><td></td></tr> <tr><td>114</td><td>150</td><td>214</td><td>75</td><td>Provisional filing fee</td><td></td></tr> </tbody> </table> <p>SUBTOTAL (1) (\$0)</p>		Large Fee Code	Entity Fee (\$)	Small Fee Code	Entity Fee (\$)	Fee Description	Fee Paid	101	710	201	355	Utility filing fee		106	320	206	160	Design filing fee		107	490	207	245	Plant filing fee		108	710	208	355	Reissue filing fee		114	150	214	75	Provisional filing fee		<p>2. EXTRA CLAIM FEES</p> <table border="1"> <thead> <tr> <th>Total Claims</th> <th>Extra Claims</th> <th>Fee from below</th> <th>Fee Paid</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> </tbody> </table> <p>110 18 210 9</p> <p>SUBTOTAL (2) (\$0)</p>		Total Claims	Extra Claims	Fee from below	Fee Paid	0	0	0	0	0	0	0	0	0	0	0	0																																																																																													
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SUBMITTED BY		Complete (if applicable)	
Name (Print/Type)	Robert M. Siminski	Registration No. Attorney/Agent	36,007
Signature	<i>Robert M. Siminski</i>	Telephone	248-641-1600
		Date	August 3, 2001

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